

PATENT

Serial No. 09/995,467

Amendment in Reply to Final Office Action of July 20, 2005

IN THE CLAIMS

Please amend claims 1-6 and 11-14 as follows:

1        1. (Currently Amended) A radio communication system having a  
2        communication channel comprising a plurality of paths between a  
3        transmitter having a plurality of antennas and a receiver having at  
4        least one antenna, wherein the transmitter comprises:  
5        path characterisation-characterization means for determining  
6        at least one transmission property of each path of said plurality  
7        of paths,  
8        data categorisation-categorization means for determining and  
9        assigning a data quality category to a set of data for  
10       transmission, said data categorization means being adapted to  
11       assign different categories to different segments of the set of  
12       data from an application; and  
13       mapping means responsive to said data-path characterisation  
14       characterization means and said data categorisation-categorization  
15       means for determining a mapping to apply the set of data to the  
16       transmitter's plurality of antennas such that the set of data is  
17       transmitted over a path or paths in which the determined data  
18       quality of the set of data corresponds to the at least one

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19 transmission property of the path or paths, thereby determining  
20 over which path or paths the set of data will be transmitted.

1 2. (Currently Amended) A system as claimed in claim 1, wherein  
2 the receiver comprises means for performing channel estimation and  
3 means for ~~signalling~~ signaling details of the output of the channel  
4 estimation to the path ~~characterisation~~ characterization means.

1 3. (Currently Amended) A transmitter for use in a radio  
2 communication system having a communication channel comprising a  
3 plurality of paths between a transmitter having a plurality of  
4 antennas and a receiver, wherein

5 path ~~characterisation~~ characterization means for determining  
6 at least one transmission property of each path of said plurality  
7 of paths,

8 data ~~categorisation~~ categorization means for determining and  
9 assigning a data quality category to a set of data for

10 transmission, said data categorization means being adapted to  
11 assign different categories to different segments of the set of  
12 data from an application; and

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13 mapping means responsive to said ~~data-path characterisation~~  
14 characterization means and said data ~~categorisation~~ categorization  
15 means for determining a mapping to apply the different portions of  
16 the set of data to respective ones of the transmitter's plurality  
17 of antennas such that a data portion transmitted over a path having  
18 a determined data quality corresponds to the at least one  
19 determined transmission property of the path, thereby determining  
20 over which path or paths the set of data will be transmitted.

1 4. (Currently Amended) A transmitter as claimed in claim 3,  
2 wherein data for transmission may be provided from a plurality of  
3 sources and ~~in that wherein~~ the data categorisation-categorization  
4 means is adapted to assign said data quality category depending on  
5 the source of the data.

1 5. (Currently Amended) A transmitter as claimed in claim 3,  
2 wherein the data ~~categorisation~~ categorization means is adapted to  
3 assign the different categories to the respective segments of the  
4 data from an application depending on at least one of (i) their  
5 relative importance, (ii) required quality of service, (iii) data  
6 rate, (iv) tolerable transmission delay and (v) tolerable error  
7 rate.

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1           6. (Currently Amended) A transmitter as claimed in claim 3,  
2 | wherein the path ~~characterisation~~ characterization means is adapted  
3 | to determine said at least one transmission property comprising at  
4 | least one of a delay, a signal-to-noise ratio, and a required  
5 | transmission power for a given signal-to-noise ratio or error rate  
6 | for each path.

1           7. (Previously Presented) A transmitter as claimed in claim 3,  
2 | wherein parameter selection means are provided for setting at least  
3 | one transmission parameter relating to the data depending on at  
4 | least one of the path (or paths) assigned for transmission of the  
5 | data and the data quality category assigned to the data.

1           8. (Previously Presented) A transmitter as claimed in claim 7,  
2 | wherein a transmission parameter specifies the type of error  
3 | control coding added to the data.

1           9. (Previously Presented) A transmitter as claimed in claim 7,  
2 | wherein a transmission parameter specifies the modulation scheme to  
3 | be used for transmission of the data.

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1        10. (Previously Presented) A transmitter as claimed in claim  
2        7, wherein a transmission parameter specifies the transmission  
3        power of each of the antennas, thereby enabling a particular  
4        signal-to-noise ratio to be achieved for at least one signal path.

1        11. (Currently Amended) A transmitter as claimed in claim 3,  
2        ~~characterised~~ characterized by being distributed at a plurality of  
3        spatially-separated sites, each site comprising at least one  
4        antenna.

1        12. (Currently Amended) A transmitter as claimed in claim 3,  
2        wherein the path ~~characterisation~~ characterization means are  
3        adapted to determine properties of the paths at least partly from  
4        measurements made by the receiver and ~~signalled~~ signaled to the  
5        transmitter.

1        13. (Currently Amended) A method of operating a radio  
2        communication system having a communication channel comprising a  
3        plurality of paths between a transmitter having a plurality of  
4        antennas and a receiver having at least one antenna, the method  
5        comprising the acts of:

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(i) the transmitter determining at least one transmission property of each path,

(ii) assigning a data quality category to different categories to different segments of a set of data from an application for transmission, and

(iii) determining a mapping to apply the set of data to the transmitter's plurality of antennas such that different portions of the set of data are transmitted over a respective path such that a determined data quality of said data portion corresponds to the determined at least one transmission property of the path, thereby determining over which path or paths the data will be transmitted.

14. (Currently Amended) A method as claimed in claim 13, ~~characterised~~ characterized by transmitting data requiring a higher quality of service over a higher quality sub-channel and further transmitting data requiring a lower quality of service over a lower quality sub-channel.